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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,268	12/02/2003	Daisuke Hirono	018842.1282	5546

24735 7590 09/21/2006

BAKER BOTTS LLP  
C/O INTELLECTUAL PROPERTY DEPARTMENT  
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WASHINGTON, DC 20004-2400

EXAMINER
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MCCLOUD, RENATA D

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/725,268

Applicant(s)

HIRONO, DAISUKE

Examiner

Renata McCloud

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 2, 6, 8 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 7, 9 and 11-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                     |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                         | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                                 | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/22/2003</u> . | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of species I in the reply filed on 08/24/2006 is acknowledged.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,5,7,9 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda (US 5923135).

**Claim 1:** a motor control system comprising junction temperature calculating means for calculating a junction temperature of a switch of a converter; and junction temperature reducing means for comparing the junction with a preset temperature limit and for performing junction temperature reduction to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 2:30-51).

**Claims 5,7:** the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 5:48-55, col. 4:66-5:3).

**Claim 9:** the current is reduced by decreasing the duty cycle (col. 5:48-55).

4. Claims 1,3,4,5,7, 11,12,14,15: 17,18,20,21 are rejected under 35 U.S.C. 102(b) as being anticipated by Stuart (US 5844399)

**Claim 1:** a motor control system comprising junction temperature calculating means for calculating a junction temperature of a switch of a converter; and junction temperature reducing

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means for comparing the junction with a preset temperature limit and for performing junction temperature reduction to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 2:30-51).

**Claim 3:** a motor control system comprising temperature detecting means for detecting a junction temperature of a switch of a converter (col. 7:13-25) junction temperature calculating means for calculating a junction temperature of the switch when the temperature detected is between a maximum temperature limit of the switch and a lower predetermined temperature; and junction temperature reducing means for comparing the junction with a preset temperature limit and for performing junction temperature reduction to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 10:30-38); loss calculating means for calculating a loss of a switching element when the temperature is equal to or less than a limit and for performing loss reduction to make the loss equal to or less than a loss limit when the loss exceeds the limit (col. 10:30-53).

**Claim 4:** a motor control system comprising loss calculating means; loss reducing means; junction temperature reducing means for comparing the junction temperature with a preset temperature limit and for performing junction temperature reducing to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit (col. 10:30-53).

**Claims 5,7,11,12,14,15:** the junction temperature reducing means carries out the reducing by reducing the frequency or reducing the current (col. 10:30-38, 53-56).

**Claim 17,18,20,21:** the loss reducing means carries out loss reduction by reducing the frequency or reducing the current (col. 10:30-38, 53-56).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9,13,16,19,22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuart in view of Takeda.

**Claim 9,13,16:** Stuart teaches the limitations of claims 5,11,and 14. Referring to claims 9,13,16, Stuart teaches changing the current by changing the duty cycle (col. 10:53-56). Stuart does not teach the current is reduced by decreasing the duty cycle. Takeda teaches reducing the current by reducing the duty cycle (col. 5:48-55). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Stuart to decrease the duty cycle as taught by Takeda in order to reduce the current and prevent damage to the switches

**Claim 19,22:** Stuart teaches the limitations of claims 17 and 20. Referring to claims 19 and 22, Stuart teaches changing the current by changing the duty cycle (col. 10:30-38, 53-56). Stuart does not teach the current is reduced by decreasing the duty cycle. Takeda teaches reducing the current by reducing the duty cycle (col. 5:48-55). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Stuart to decrease the duty cycle as taught by Takeda in order to reduce the current and prevent damage to the switches.

***Conclusion***

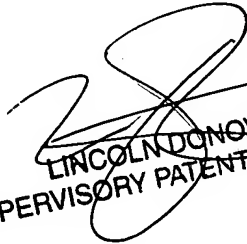
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 5:30 am - 2pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Renata McCloud  
Examiner  
Art Unit 2837

rdm

  
LINCOLN DONOVAN  
SUPERVISORY PATENT EXAMINER